

Landscape in Mbeya, Tanzania. Photo credit: Abigail K. Hart



Hart, A. K., Milder, J. C., Estrada-Carmona, N., DeClerck, F. A. J., Harvey, C. A., & Dobie, P. (2015). Integrated landscape initiatives in practice: assessing experiences from 191 landscapes in Africa and Latin America. In Minang, P. A., van Noordwijk, M., Freeman, O. E., Mbow, C., de Leeuw, J., & Catacutan, D. (Eds.) *Climate-Smart Landscapes: Multifunctionality in Practice*, 89-101. Nairobi, Kenya: World Agroforestry Centre (ICRAF).

Integrated landscape initiatives in practice: assessing experiences from 191 landscapes in Africa and Latin America

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Highlights

- Landscape approaches are increasingly being undertaken as a way to achieve positive outcomes related to agricultural production, ecosystem conservation, rural livelihoods, and multi-stakeholder coordination
- We used a systematic survey and assessment process to characterize the context, motivations, investments, outcomes and participants of 191 initiatives using landscape approaches in Africa and Latin America
- The objectives, investments, and outcomes of these initiatives addressed agriculture, livelihoods and conservation issues, and nearly all initiatives invested in institutional coordination and capacity building to support cross-sector synergies
- Key challenges for effective and scalable landscape approaches included unsupportive policy frameworks, incomplete stakeholder engagement and lack of sustainable funding
- Although practitioners recognized landscape approaches as challenging long-term endeavours, they also perceived them as necessary to solve problems where traditional sector-based approaches and scales of intervention have proven inadequate

1. Introduction

In recent years, there has been a dramatic increase in demands on agriculture and other land uses to increase food and energy production while conserving critical ecosystems and the services they provide, reducing poverty and mitigating climate change. While these demands have grown, the land and water resources available to meet them are diminishing in many places due to severe environmental degradation resulting from unsustainable agriculture and other land use practices (Foley et al., 2005; Clark et al., 2012), depletion of groundwater reserves, and impacts of climate change, among other factors. With land for agriculture expected to expand by 49 million ha in Latin America and the Caribbean

and 51 million ha in Africa by 2050 (FAO, 2011), competition for already scarce land and water resources will further heighten in the coming decades.

To address these challenges, there has been a growing call for management approaches that promote multifunctional rural landscapes that more effectively deliver food production, ecosystem conservation, and human development goals, while reducing tradeoffs among these goals. Multi-sector, integrated landscape approaches are becoming increasingly common in Africa, Latin America, and elsewhere. These are manifest in a wide range of forms, with associated fields of study such as whole landscape management (DeFries & Rosenzweig, 2010), bioregional planning (Brunckhorst, 2000), ecoagriculture (Scherr & McNeely, 2008), land sparing (Phalan et al., 2011), land sharing (Perfecto & Vandermeer, 2010), integrated watershed management (Heathcote et al., 1998), and climate-smart landscapes (Harvey et al., 2014).

In Africa and Latin America, current models of integrated landscape management have antecedents dating from the 1980s and 1990s. For example, throughout the 1990s in Sahelian West Africa, governments and development organizations promoted ‘gestion de terroir’ as a holistic and integrated approach to managing village lands (Painter et al., 1994; Teyssier, 1995; see Bernard, Chapter 5, this book). Similarly, integrated natural resource management (INRM) focused on incorporating community well-being into ecosystem management (Campbell & Sayer, 2003; German et al., 2012). Throughout Latin America, territorial development approaches to economic development aimed to improve rural livelihoods through decentralized planning and endogenous development interventions (Schejtman & Berdegué, 2008). From the conservation side, both continents have legacies of integrated conservation and development projects (ICDPs), which aimed to integrate livelihood considerations into conservation projects, but which have been criticized for their general lack of success (McShane & Wells, 2004).

Integrated landscape approaches – which serve as an umbrella for a range of related terms, approaches and practices (e.g., see Scherr et al., 2013) – are defined as approaches which use landscape management practices to address multiple objectives and provide multiple benefits (Sayer et al., 2013; Scherr et al., 2014). They emphasize the promotion of synergies and management of tradeoffs among economic, social and ecological dimensions of the landscape, collaborative decision-making processes, and supportive market and policy contexts (Scherr et al., 2014). As a result of converging demands for landscape multifunctionality, landscape initiatives have proliferated as ways of achieving positive outcomes related to agricultural production, ecosystem conservation, rural livelihoods, and institutional planning and coordination. In the international arena, the emergence of dialogues and coalitions such as the Global Landscapes Forum (GLF, 2014) and the Landscapes for People, Food and Nature Initiative (LPFN, 2014), demonstrates interest and commitment to landscape approaches from leading organizations across the fields of agriculture, development, conservation and climate change.

However, despite the growing interest in and implementation of integrated landscape approaches there has been a lack of systematic, empirical characterization of initiatives using such approaches, their objectives, activities and outcomes. We aimed to fill that gap by conducting a structured survey of landscape initiatives drawing on practitioners and participants across Africa, Latin America and the Caribbean. Results of these studies are detailed in separate works (Milder et al., 2014 and Estrada-Carmona et al., 2014,

respectively). Here we provide a synthesis of key findings in both regions and highlight implications for future policy development, investment, and programmatic activities to implement effective initiatives in support of sustainable rural landscapes globally.

Six research questions guided the studies: 1) where and in what kinds of contexts are landscape approaches taking place?; 2) why are landscape approaches taking place, and what kinds of challenges do they seek to address?; 3) what kinds of investments, activities and governance structures are included in landscape approaches?; 4) what kinds of stakeholders are involved in landscape approaches?; 5) to what extent were the surveyed initiatives reported to achieve positive outcomes across four ‘domains’ of landscape performance – food production, livelihoods, ecosystem conservation, and institutional planning and coordination?; and 6) what were the most and least successful aspects of each initiative, and are there patterns in the effectiveness of landscape approaches across the full sample? While not exhaustive, the surveys provide insight into the motivations for stakeholders to apply integrated landscape approaches, the types of investments that they have made to improve landscape multifunctionality, the range of outcomes they have achieved, and the barriers and opportunities that they see for landscape approaches moving forward.

2. Methods

In the studies for both Africa (Milder et al., 2014) and Latin America and the Caribbean (LAC) (Estrada-Carmona et al., 2014), we initially identified potential initiatives through a combination of internet keyword searches, key informant interviews, and canvassing of individuals active in the Landscapes for People, Food and Nature Initiative. For the purpose of the study, we defined integrated landscape initiatives as initiatives that 1) seek to advance goals across the four domains of landscape performance (i.e., landscape multifunctionality), 2) work at a landscape scale (i.e., areas between tens to tens of thousands of sq. km), 3) support multi-stakeholder processes, platforms or institutions, and 4) have moved beyond the concept development and design phase to implement specific activities and report outcomes.

We aimed to identify initiatives and activities led by diverse actors, including grassroots organizations, government programmes, private sector actors, and donor organizations. We included initiatives seeking to integrate new activities and investments across sectors as well as efforts to maintain or adapt existing integrated land management systems, including traditional or indigenous systems. We used basic information gathered on each initiative – location, timeframe, activities, investments, and stakeholder involvement – to screen the initiatives for adherence to our definition and suitability for inclusion in the survey sample. We identified a total of 284 candidate initiatives in Africa and 382 candidate initiatives in the LAC region (Estrada-Carmona et al., 2014; Milder et al., 2014).

For each initiative, we provided a structured survey (consisting of 45 questions) to one leader or participant who was very familiar with the initiative and the landscape in which it was being implemented. To address the six research questions, the survey included a combination of closed- and open-ended questions on the locations, context, motivations and objectives, participating stakeholder groups, funding and governance structures, investments, outcomes and most and least successful aspects of each initiative (see Milder et al., 2014 and Estrada-Carmona et al., 2014 for more details on the survey structure). Survey questions on initiatives’ investments were designed to understand the

activities or processes supported by the initiatives' intellectual, technical and financial resources. Similarly, the questions on initiatives' outcomes aimed at understanding the impact of initiative activities'. Respondents selected the investments made and outcomes achieved by their initiatives in each of the four 'domains' of landscape multifunctionality (production, conservation, livelihoods, and institutional planning and coordination) from a list of possible options.

The survey had a response rate of 45% (173 out of 382) for the LAC region and 37% (105 out of 284) for Africa. We screened the survey responses for completeness and confirmation that they met our definition of an integrated landscape initiative. The final set of surveys included 104 complete responses from LAC and 87 from Africa.

We used descriptive statistics to summarize information on the dates and duration, motivations, investments, number and type of participating stakeholder groups and sectors, outcomes of the initiatives, and the location, size, and land cover composition of the landscapes where these initiatives took place. We created investment and outcome indices to characterize the breadth of investments made and outcomes achieved across the four domains. We used bivariate statistical tests (t-test and ANOVA) to examine the relationships among various initiative attributes, and between initiative attributes and the outcome index. Open-ended responses were coded to analyze patterns in responses and the emergence of themes.

It is important to note that, although we used a variety of methods to identify and contact initiatives, the 191 initiatives surveyed are not necessarily representative of all initiatives implementing landscape approaches. In particular, grassroots initiatives and those with limited connection to international networks or poor online representation may be under-represented in our sample. Additionally, all survey data were self-reported by respondents without independent verification by the research teams. While introducing the potential for bias, the leaders are the most knowledgeable individuals about the participants, activities and outcomes of initiatives. Given these limitations, the findings are not definitive, but offer an important contribution toward understanding the practice of integrated landscape management in two of the world's tropical regions.

3. Overview of results

There were many similarities in the general characteristics of integrated landscape initiatives in both continents (Table 7.1). The initiatives took place in mosaic landscapes, consisting of a mix of more than eight land cover and use types on average in Africa and more than ten on average in LAC, including crop, pasture, forest and urban lands. The respondents reported that landscape approaches are being used in landscapes ranging from tens to tens of thousands of square kilometres. The size of the populations living in the study landscapes varied widely in both continents, from hundreds to millions of people. Although heterogeneous in area and population size, it is important to note that the initiatives self-identified as landscape initiatives and the diverse political, ecological and geophysical factors influenced the rationale for their boundaries.

Conservation objectives related to biodiversity conservation, natural resource management and sustainable land management more often motivated the work of initiatives in both continents than other objectives. The prioritization of objectives related to the management of common pool resources (e.g., biodiversity, water and soil)

Table 7.1 Summary of selected characteristics of surveyed initiatives in Africa (87) and Latin America and the Caribbean (104). All data are based on information provided by the survey respondents.

	Africa	Latin America and the Caribbean
Number of survey responses included in final dataset after screening (response rate)	87 (37%)	104 (45%)
Number of countries represented by surveyed initiatives	33	21
Percent of surveyed initiatives beginning before the year 2000	5%	29%
Average number of objectives, selected from a list of 15 options*	9 (s.e. = 0.43)	10 (s.e. = 0.28)
Average number of stakeholder groups participating in the design and/or implementation of initiatives	9 (s.e. = 0.38)	11 (s.e. = 0.41)
Average number of sectors involved in surveyed initiatives (e.g., forestry, agriculture, tourism, etc.)	4 (s.e. = 0.20)	4 (s.e. = 0.19)
Percent of surveyed initiatives reported to have invested in all four 'domains' of landscape multifunctionality (agriculture, conservation, livelihoods, and institutional planning and coordination)	83%	75%
Percent of respondents that reported as least one positive outcome in each of the four domains	63%	55%
Investment index (0-100): Weighted proportion of investments in each domain (0-25), and the weighted sum of the indices for each domain (0-100)		
Agriculture	12	11
Conservation	14	13
Livelihoods	10	11
Institutional planning and coordination	15	14
<i>Total investment index</i>	<i>51</i>	<i>50</i>
Outcome index (0-100): Weighted proportion of outcomes in each domain (0-25), and the weighted sum of the indices for each domain (0-100)		
Agriculture	10	10
Conservation	10	11
Livelihoods	9	9
Institutional planning and coordination	14	16
<i>Total outcome index</i>	<i>44</i>	<i>47</i>
* The survey respondents could select from the following fifteen objectives: enhance food security, improve crop productivity, diversify food production, conserve biodiversity,		

conserve soil or increase soil fertility, stop or reverse natural resource degradation, enhance sustainable land management, reduce conflict among different resource users in the landscape, increase farmer incomes, improve livestock productivity, improve health or nutrition, conserve or increase water quality or water flow, reduce the environmental impacts of agriculture, mitigate climate change or obtain carbon credits, reduce vulnerability to extreme weather events.

suggests that stakeholders recognized a need to organize around the management of such resources. In addition to these common objectives, African initiatives more often reported objectives related to improving livelihoods, such as food security, reducing conflict and reducing vulnerability than their Latin American counterparts, while initiatives in LAC more often reported other conservation objectives such as water conservation and reducing negative impacts of agriculture. Areas that were rarely mentioned as important objectives for initiatives included improving crop and livestock productivity, mitigating climate change and improving health and nutrition. Often, these areas were reported to be supported by other organizations in the same landscapes that did not participate directly in the initiatives' design or implementation. This could signal that initiatives tended to focus on complementing existing investments in their landscapes, even when such investments were not planned in collaboration with the initiative and its participants, rather than duplicating existing efforts. It also could indicate that initiatives have yet to engage influential actors working on issues that they perceived as tangential to the core objectives of integrated landscape management.

Initiatives on both continents reported including a wide range of stakeholder groups (average of 11 groups per initiative in LAC and 9 in Africa). In both cases, local farmer groups or producer associations were the most commonly involved stakeholder group, participating in 83% and 86% of surveyed initiatives in Africa and LAC, respectively. Local government entities, extension agents, and local non-governmental organizations (NGOs) were involved in more than 70% of initiatives on both continents. Notably, private sector stakeholder groups representing agribusinesses and extractive industries such as timber, oil and gas, rarely participated in the initiatives (participating in <10% of surveyed initiatives in Africa and 22% in LAC). On average, initiatives engaged stakeholder groups from at least four sectors, three of which were the same on both continents: natural resources and environment, agriculture and forestry.

Respondents also reported that most initiatives invested in activities in all four domains (agriculture, conservation, livelihoods, and institutional planning and coordination; Figure 7.1). In both Africa and LAC the proportion of investments related to institutional planning and coordination was higher than the proportion of investments in other domains, significantly so in LAC (ANOVA, $F_3 = 3.978$, $p = 0.008$). The outcomes reported by initiatives in both continents reflect the pattern of their investments, with significantly more outcomes reported in relation to institutional planning and coordination than in the other domains (ANOVA, $p < 0.001$, for both LAC and Africa). In particular, initiatives reported improvements in coordination and cooperation among stakeholders, in 77% and 80% of initiatives in Africa and LAC, respectively, and improvements in the capacity

of local communities to sustainably manage agriculture and natural resources in 77% and 72% of initiatives in Africa and LAC, respectively. In agreement with the principles set forth by Sayer et al. (2013), these results suggest that capacity building activities are centrally important to the work of landscape initiatives and foundational to the achievement of other objectives. An alternative or additional explanation is that capacity building activities are easier to fund and implement within a short time frame and with limited funding, two of the key challenges that initiatives reported.

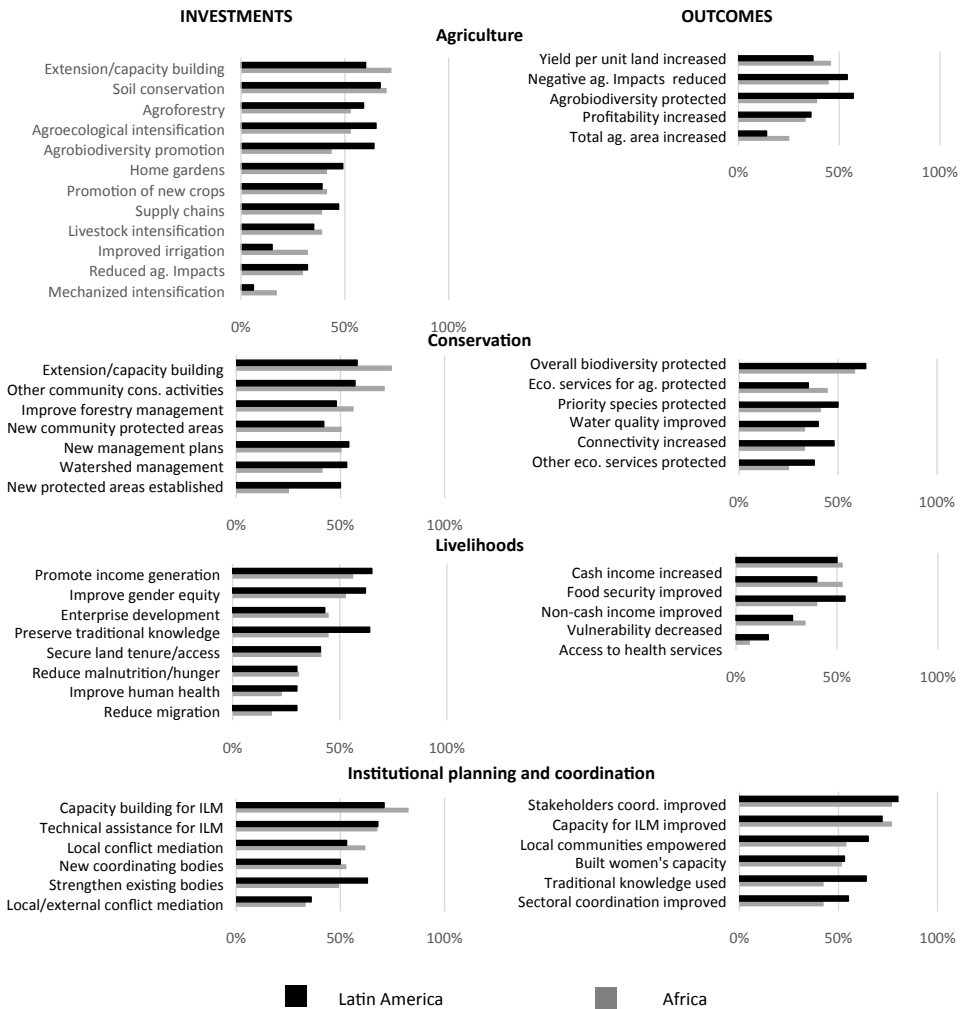


Figure 7.1 Proportion of the respondents who reported their initiative as including each of the 33 specific investments and activities (left panel) and as achieving each of the 22 specific outcomes (right panel) across the four domains of landscape multifunctionality. Respondents in Africa (n = 87 projects) and in Latin America (n = 104 projects) selected from pre-identified sets of investments/activities and outcomes (adapted from Milder et al., 2014 and Estrada-Carmona et al., 2014).

4. Comparison of key results from Latin America and the Caribbean and Africa

4.1 Initiative objectives

Conservation objectives (such as conserving biodiversity, reducing land degradation and improving sustainable land management) were the most common motivations for initiatives in Africa and LAC, occurring in more than 78% and 95% of initiatives respectively. Despite these objectives, the participation of international conservation organizations in African initiatives was weak compared to their involvement in initiatives in LAC (in 39% and 56% of initiatives, respectively). Therefore, although conservation was a common entry point, many African initiatives evolved into landscape initiatives from more traditional development initiatives, while in LAC many initiatives grew out of single-sector conservation initiatives. Also in contrast to initiatives in LAC, African initiatives tended to place more emphasis on objectives related to agricultural intensification, food security and the well-being of producer groups.

4.2 Participation

Representatives of landscape initiatives in LAC reported strong multi-stakeholder representation overall. Compared to initiatives in Africa, there was a stronger representation of grassroots initiatives in the LAC survey population. Local stakeholder groups (e.g., producer associations, local governments, local NGOs and local research institutions) were the core of initiatives in LAC and the most frequent participants. Other groups that integrated development and conservation programmes have struggled to include, particularly women and landless people groups, were often involved in implementation but rarely in the design of initiatives in LAC, indicating that potentially marginalized groups are still absent during decision-making processes. Despite these potential limitations, in Africa the participation of women's groups (in 57% of initiatives), was significantly associated with achieving broader outcomes in African initiatives (t-test, $p = 0.05$). In contrast, international NGOs and donors participated in 74% and 87% of initiatives in Africa and LAC, respectively, particularly during the design phase, providing technical guidance and funding. Although private sector actors were the least frequently involved in initiative activities, in LAC local agribusiness (in 22%) and forestry companies (in 20%) were notably more often involved than foreign agribusiness companies (in 7%) or other extractive industries such as oil, gas and mining (in 7%). In Africa, private sector participation was even lower, with only 8% of initiatives reporting the participation of local agribusiness, 5% forestry companies, 3% mining, and no participation from foreign agribusiness companies.

While landscape initiatives on both continents have established platforms for gathering diverse stakeholders, generating effective incentives for large-scale commercial stakeholders and setting objectives they agree on, remains a challenge. Failure to find strategies for including such actors, who often influence the landscape in important ways, was often reported among the least successful aspects of LAC initiatives, often leading to significant challenges during the implementation phase.

4.3 Investments and outcomes

When looking at start dates, the number of new initiatives each year has accelerated over the past decade, and in the case of Africa, in the last five years in particular. The

median start date of initiatives was 2005 in LAC and 2008 in Africa. In general, the age of initiatives was positively correlated with the number and diversity of outcomes they reported. In LAC, older initiatives also achieved more outcomes related to conservation and were able to involve more sectors. These relationships indicate that some of the activities supported by initiatives take years to bear fruit, including activities related to the most important motivations for the initiatives, such as conservation objectives. Therefore, the relatively younger African initiatives may not yet have achieved many of these conservation outcomes. While creating platforms for collaboration may be achieved in a few years, it may take more time to engage and coordinate the necessary stakeholders and sectors to accomplish outcomes related to some objectives.

Initiatives in both continents reported relatively more investments and significantly more outcomes related to institutional planning and coordination than the other three domains (ANOVA, $p < 0.001$ for LAC and Africa). Investments in capacity building were common across domains, but particularly in relation to institutional planning and coordination (see Figure 7.1). These findings suggest that initiative leaders in LAC may perceive platforms for coordination as an important foundation for achieving specific outcomes related to their primary objectives. African initiatives that invested in the creation or strengthening of coordination bodies reported significantly more outcomes than those that did not invest in coordination bodies across all domains (t-test, $p = 0.03$). Within the institutional planning and coordination domain, investments by African initiatives to reduce community vulnerability and conflict among stakeholder groups suggest that initiatives perceive landscape platforms as a potential tool for addressing conflicts between stakeholders and working across sectors to tackle complex challenges like community vulnerability (see Figure 7.1).

Investments in the other domains (e.g., agriculture, conservation and livelihoods) tended to support the emphasis on capacity building and conservation objectives. Taking the agriculture domain as an example, initiatives in LAC tended to focus on investments for supporting diversified farming systems that are more compatible with conservation (e.g., promotion of agrobiodiversity, agroecological intensification and agroforestry), a high priority objective for initiatives, rather than conventional strategies for mechanized intensification or agricultural expansion (reported by only 6% of initiatives; Figure 7.1). In Africa, only three outcomes were reported across the agriculture, conservation and livelihoods domains by more than half of initiatives – protection of biodiversity, improved food security and increased household cash income. The significant and positive relationship between investments in local stakeholder participation, capacity building and cooperation and the number of outcomes reported (t-test, $p < 0.001$, $p = 0.01$, $p = 0.03$, respectively), also suggests that such investments provide a foundation for stakeholders to navigate complex challenges and diverse stakeholder interests.

4.4 Most and least successful aspects

African initiatives often reported tangible achievements, such as the designation of a new protected area, soil or water conservation, the establishment of a new coordinating body, or the adoption of new tools and practices, as their greatest successes. LAC initiatives tended to report successes related to improvements in capacity for implementing integrated management, and in natural resource management. Interestingly, livelihood improvements (e.g., improved cash income, improved food security, etc.) were reported

as the most successful aspects by 16% of African initiatives despite the fact that the livelihoods domain received the lowest proportion of investment of all domains (see Figure 7.1). Respondents in both continents reported that coordinating stakeholder groups was often cited as an ongoing challenge for initiatives. However, the most common challenge was limited and sporadic funding for implementing the initiatives' activities. Initiatives also reported poor market access and infrastructure, as well as unsupportive policies as additional challenges to integrating management approaches in their landscapes.

5. Implications for policy and practice

Many countries in LAC and Africa have experienced highly contested debates over paradigms for development, conservation and agricultural production (see, for example, Wezel et al., 2011 and Martinelli et al., 2011). Latin America has provided 35% of the increase in global food production over the past 30 years (FAO, 2011) and Africa is expected to increase available food by 20% and land under agriculture by 23% by 2050 (Hubert et al., 2010). At the same time, LAC and Africa are home to thirteen biodiversity hotspots (Myers et al., 2000). General political trends of decentralization, agrarian reform, and transition to democracy have created an environment where integrated landscape approaches have been able to take root.

The LAC and Africa reviews suggest that the prevalence of landscape initiatives as approaches for simultaneously achieving positive outcomes related to agricultural production, ecosystem conservation, rural livelihoods, and institutional planning and coordination has increased over the past ten to twenty years. The expansion of integrated management in LAC and Africa is consistent with recent trends in conservation to work in production landscapes (Fischer et al., 2006; Chazdon et al., 2009), and a shift in thinking of agriculture and rural development policymakers and practitioners to give greater attention to the ecological underpinnings of their objectives and agenda (Pretty et al., 2011). In particular, complex challenges resulting from land degradation and climate change, as well as significant opportunities for ecosystem restoration (Laestadius et al., 2011), have generated interest across communities of practice to work together in new ways.

Notwithstanding the challenges initiatives faced, the findings demonstrate that outcomes can be achieved simultaneously in domains that at times have been thought to be incompatible (e.g., agriculture and conservation). The experiences of the surveyed initiatives in LAC and Africa also suggest that a move toward multi-objective management can lead to the achievement of a broad set of outcomes, rather a dilution of initiatives' effectiveness, particularly by reducing tradeoffs through cross-sector cooperation and enabling access to the resources and energy of multiple stakeholders.

The willingness of initiatives to incorporate multiple objectives into management, their emphasis on capacity building and stakeholder coordination, and their efforts to integrate multiple sectors and stakeholders point to important changes from previous approaches to conservation and development. Achievements related to new or enhanced institutions and human capacity to support cross-sector collaboration were not only frequently reported, but also cited among the most successful aspects of initiatives. Considering that the majority of the 191 initiatives were young, having begun since 2005, it appears that such investments are central features of the initiatives, particularly in the early stages of initiatives' development.

The initiatives achieved some of the principles for integrated management laid out by Sayer et al. (2013). For example, they started from a common entry point, pursuing multifunctionality and multistakeholder engagement, and strengthening stakeholder capacity. However, they fell short on others (e.g., having clear roles and responsibilities, and effective participatory monitoring). Unfortunately, institutional and political contexts did not always support integrated landscape management, and in many cases provided incentives or mandates that worked against inter-sector collaboration and multifunctional landscape management. For instance, agricultural subsidies that incentivize expansion into natural areas or excessive use of chemical inputs were cited as barriers for the implementation of integrated landscape management approaches by several respondents. Additionally, incomplete stakeholder engagement, or shallow (i.e., lack of commitment of intellectual and financial resources) and inconsistent participation, indicates that the benefits of participating in landscape initiatives do not outweigh the costs (i.e., investments in time and effort) or address the interests of all stakeholder groups. The non-participation of powerful actors with influence over land management decisions can severely limit or undermine the effectiveness of initiatives. Therefore, initiatives will need to clarify the benefits of integrated landscape management and promote policy frameworks that create regulatory environments and incentives for such stakeholders to participate in more collaborative ways (e.g., reduced risk in sourcing materials, reputational benefits, etc.) (Mermet, 2011; Kissinger et al., 2013).

The frequency of the creation of new platforms for coordination compared to the strengthening of existing platforms suggests that many existing institutions are unsuitable for supporting the work of integrated landscape initiatives. It is likely that many organizations in initiative landscapes will continue to operate under specific mandates that will limit their suitability to host initiatives. However, landscape approaches provide a long-term framework for strategically coordinating and complementing the short-term, sectoral efforts. Most investment in rural landscapes continues to stem from specific sectoral agendas and is designed to address these agendas, such that, despite the involvement of government agencies and international donors, initiatives continue to struggle to obtain long-term or permanent funding for their activities, limiting their effectiveness and scalability. Creativity in sustainably integrating operating mechanisms such as payments for ecosystem services, legislation, or other incentives engaging with both the public and private sectors will be needed to ensure the long-term benefits of initiatives. The incorporation of principles for integrated management at the policy level also will be important for establishing opportunities for sustained funding for initiatives.

Although practitioners recognized landscape initiatives as challenging, long-term endeavours, they also perceived them as necessary to solve problems where traditional sector-based approaches and scales of intervention have proven inadequate. As the complexity of challenges facing rural landscape increases and demand for their resources grows, the viability of single sector approaches will likely continue to be questioned. It remains to be demonstrated that the benefits of integrated approaches outweigh their transaction costs, and if the magnitude of benefits that they provide to diverse stakeholders is greater than single sector strategies for development and conservation. This will contribute to ongoing debates on land sparing versus land sharing approaches, common pool resource management, and the participatory land management processes.

Measuring the outcomes of initiative investments in coordination is challenging, particularly given the long-term and adaptive nature of landscape initiatives. Demonstrating these benefits to policymakers and donors will be crucial for scaling up landscape approaches by improving policy environments and access to long-term funding. Ensuring the success of initiatives also will depend on their ability to create regulatory environments or incentives for engaging influential stakeholder groups that currently appear to be underrepresented in landscape approaches. However, addressing these challenges will require the commitment and cooperation between actors at international, national and sub-national levels to broaden the evidence base of integrated management and shape enabling environments in which such initiatives can succeed. The findings of this study can help inform the design of policies that support landscape approaches by promoting integration across sectors and facilitating coordination of diverse actors. This assessment also contributes to improving implementation of landscape approaches by identifying key issues that initiatives might address through cross-landscape collaboration and institutional partnerships.

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